

Microsoft Azure Cosmos Db Revealed A Multi Modal Database Designed For The Cloud

Analyze vast amounts of data in record time using Apache Spark with Databricks in the Cloud. Learn the fundamentals, and more, of running analytics on large clusters in Azure and AWS, using Apache Spark with Databricks on top. Discover how to squeeze the most value out of your data at a mere fraction of what classical analytics solutions cost, while at the same time getting the results you need, incrementally faster. This book explains how the confluence of these pivotal technologies gives you enormous power, and cheaply, when it comes to huge datasets. You will begin by learning how cloud infrastructure makes it possible to scale your code to large amounts of processing units, without having to pay for the machinery in advance. From there you will learn how Apache Spark, an open source framework, can enable all those CPUs for data analytics use. Finally, you will see how services such as Databricks provide the power of Apache Spark, without you having to know anything about configuring hardware or software. By removing the need for expensive experts and hardware, your resources can instead be allocated to actually finding business value in the data. This book guides you through some advanced topics such as analytics in the cloud, data lakes, data ingestion, architecture, machine learning, and tools, including Apache Spark, Apache Hadoop, Apache Hive, Python, and SQL. Valuable exercises help reinforce what you have learned. What You Will Learn Discover the value of big data analytics that leverage the power of the cloud Get started with Databricks using SQL and Python in either Microsoft Azure or AWS Understand the underlying technology, and how the cloud and Apache Spark fit into the bigger picture See how these tools are used in the real world Run basic analytics, including machine learning, on billions of rows at a fraction of a cost or free Who This Book Is For Data engineers, data scientists, and cloud architects who want or need to run advanced analytics in the cloud. It is assumed that the reader has data experience, but perhaps minimal exposure to Apache Spark and Azure Databricks. The book is also recommended for people who want to get started in the analytics field, as it provides a strong foundation.

Traditional intrusion detection and logfile analysis are no longer enough to protect today's complex networks. In this practical guide, security researcher Michael Collins shows you several techniques and tools for collecting and analyzing network traffic datasets. You'll understand how your network is used, and what actions are necessary to protect and improve it. Divided into three sections, this book examines the process of collecting and organizing data, various tools for analysis, and several different analytic scenarios and techniques. It's ideal for network administrators and operational security analysts familiar with scripting. Explore network, host, and service sensors for capturing security data Store data traffic with relational databases, graph databases, Redis, and Hadoop Use SiLK, the R language, and other tools for analysis and visualization Detect unusual phenomena through Exploratory Data Analysis (EDA) Identify significant structures in networks with graph analysis Determine the traffic that's crossing service ports in a network Examine traffic volume and behavior to spot DDoS and database raids Get a step-by-step process for network mapping and inventory Prepare for Microsoft Certification Exam 70-483: Programming in C#. The "What, Why, and How" of each concept is presented along with quick summaries, code challenges,

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and exam questions to review and practice key concepts. You will learn how to use: Lambda expressions to write LINQ query expressions Asynchronous programming with the Async and Await keywords to maximize performance of slow applications Regular expressions to validate user input Reflection to create and handle types at runtime and much more The source code in the book will be available in the form of iCanCSharp notebooks and scripts that allow you to try out examples and extend them in interesting ways. What You Will Learn Understand the necessary knowledge and skill set to prepare for Microsoft Exam 70-483 Study the code challenges and practice questions on C# that are relevant to the exam Master the C# programming language Who This Book Is For Experienced C# and .NET programmers and developers who are ready to take and pass the exam in order to get certified

Get up-to-speed with Microsoft's AI Platform. Learn to innovate and accelerate with open and powerful tools and services that bring artificial intelligence to every data scientist and developer. Artificial Intelligence (AI) is the new normal. Innovations in deep learning algorithms and hardware are happening at a rapid pace. It is no longer a question of should I build AI into my business, but more about where do I begin and how do I get started with AI? Written by expert data scientists at Microsoft, Deep Learning with the Microsoft AI Platform helps you with the how-to of doing deep learning on Azure and leveraging deep learning to create innovative and intelligent solutions. Benefit from guidance on where to begin your AI adventure, and learn how the cloud provides you with all the tools, infrastructure, and services you need to do AI. What You'll Learn Become familiar with the tools, infrastructure, and services available for deep learning on Microsoft Azure such as Azure Machine Learning services and Batch AI Use pre-built AI capabilities (Computer Vision, OCR, gender, emotion, landmark detection, and more) Understand the common deep learning models, including convolutional neural networks (CNNs), recurrent neural networks (RNNs), generative adversarial networks (GANs) with sample code and understand how the field is evolving Discover the options for training and operationalizing deep learning models on Azure Who This Book Is For Professional data scientists who are interested in learning more about deep learning and how to use the Microsoft AI platform. Some experience with Python is helpful.

Discover the powerful capabilities of Dapr by implementing a sample application with microservices leveraging the actor model to foster its strengths. Find out how Dapr helps you simplify the creation of resilient and portable microservices with this book. Conquer SQL Server 2019 administration—from the inside out Dive into SQL Server 2019 administration—and really put your SQL Server DBA expertise to work. This supremely organized reference packs hundreds of timesaving solutions, tips, and workarounds—all you need to plan, implement, manage, and secure SQL Server 2019 in any production environment: on-premises, cloud, or hybrid. Six experts thoroughly tour DBA capabilities available in SQL Server 2019 Database Engine, SQL Server Data Tools, SQL Server Management Studio, PowerShell, and Azure Portal. You'll find extensive new coverage of Azure SQL, big data clusters, PolyBase, data protection, automation, and more. Discover how experts tackle today's essential tasks—and challenge yourself to new levels of mastery. Explore SQL Server 2019's toolset, including the improved SQL Server Management Studio, Azure Data Studio, and Configuration Manager Design, implement, manage, and govern on-premises, hybrid,

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or Azure database infrastructures Install and configure SQL Server on Windows and Linux Master modern maintenance and monitoring with extended events, Resource Governor, and the SQL Assessment API Automate tasks with maintenance plans, PowerShell, Policy-Based Management, and more Plan and manage data recovery, including hybrid backup/restore, Azure SQL Database recovery, and geo-replication Use availability groups for high availability and disaster recovery Protect data with Transparent Data Encryption, Always Encrypted, new Certificate Management capabilities, and other advances Optimize databases with SQL Server 2019's advanced performance and indexing features Provision and operate Azure SQL Database and its managed instances Move SQL Server workloads to Azure: planning, testing, migration, and post-migration

Harness the power of PolyBase data virtualization software to make data from a variety of sources easily accessible through SQL queries while using the T-SQL skills you already know and have mastered. PolyBase Revealed shows you how to use the PolyBase feature of SQL Server 2019 to integrate SQL Server with Azure Blob Storage, Apache Hadoop, other SQL Server instances, Oracle, Cosmos DB, Apache Spark, and more. You will learn how PolyBase can help you reduce storage and other costs by avoiding the need for ETL processes that duplicate data in order to make it accessible from one source. PolyBase makes SQL Server into that one source, and T-SQL is your golden ticket. The book also covers PolyBase scale-out clusters, allowing you to distribute PolyBase queries among several SQL Server instances, thus improving performance. With great flexibility comes great complexity, and this book shows you where to look when queries fail, complete with coverage of internals, troubleshooting techniques, and where to find more information on obscure cross-platform errors. Data virtualization is a key target for Microsoft with SQL Server 2019. This book will help you keep your skills current, remain relevant, and build new business and career opportunities around Microsoft's product direction. What You Will Learn Install and configure PolyBase as a stand-alone service, or unlock its capabilities with a scale-out cluster Understand how PolyBase interacts with outside data sources while presenting their data as regular SQL Server tables Write queries combining data from SQL Server, Apache Hadoop, Oracle, Cosmos DB, Apache Spark, and more Troubleshoot PolyBase queries using SQL Server Dynamic Management Views Tune PolyBase queries using statistics and execution plans Solve common business problems, including "cold storage" of infrequently accessed data and simplifying ETL jobs Who This Book Is For SQL Server developers working in multi-platform environments who want one easy way of communicating with, and collecting data from, all of these sources

Design, build, and justify an optimal Microsoft IoT footprint to meet your project needs. This book describes common Internet of Things components and architecture and then focuses on Microsoft's Azure components relevant in deploying these solutions. Microsoft-specific topics addressed include: deploying edge devices and pushing intelligence to the edge; connecting IoT devices to Azure and landing data there, applying Azure Machine Learning, analytics, and Cognitive Services; roles for Microsoft solution accelerators and managed solutions; and integration of the Azure footprint with legacy infrastructure. The book concludes with a discussion of best practices in defining and developing solutions and creating a plan for success. What You Will Learn Design the right IoT architecture to deliver solutions for a variety of project needs Connect IoT

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devices to Azure for data collection and delivery of services Use Azure Machine Learning and Cognitive Services to deliver intelligence in cloud-based solutions and at the edge Understand the benefits and tradeoffs of Microsoft's solution accelerators and managed solutions Investigate new use cases that are described and apply best practices in deployment strategies Integrate cutting-edge Azure deployments with existing legacy data sources Who This Book Is For Developers and architects new to IoT projects or new to Microsoft Azure IoT components as well as readers interested in best practices used in architecting IoT solutions that utilize the Azure platform Enhance your Azure administration and Azure DevOps skills and get up and running with networking, security, automation, and effective cost management Key Features Explore a variety of administration patterns used for different cloud architectures Discover best practices for administering various IT systems hosted in Azure Administer, automate, and manage your Azure cloud environment effectively Book Description Microsoft Azure is one of the upcoming cloud platforms that provide cost-effective solutions and services to help businesses overcome complex infrastructure-related challenges. This book will help you scale your cloud administration skills with Microsoft Azure. Learn Azure Administration starts with an introduction to the management of Azure subscriptions, and then takes you through Azure resource management. Next, you'll configure and manage virtual networks and find out how to integrate them with a set of Azure services. You'll then handle the identity and security for users with the help of Azure Active Directory, and manage access from a single place using policies and defined roles. As you advance, you'll get to grips with receipts to manage a virtual machine. The next set of chapters will teach you how to solve advanced problems such as DDoS protection, load balancing, and networking for containers. You'll also learn how to set up file servers, along with managing and storing backups. Later, you'll review monitoring solutions and backup plans for a host of services. The last set of chapters will help you to integrate different services with Azure Event Grid, Azure Automation, and Azure Logic Apps, and teach you how to manage Azure DevOps. By the end of this Azure book, you'll be proficient enough to easily administer your Azure-based cloud environment. What you will learn Explore different Azure services and understand the correlation between them Secure and integrate different Azure components Work with a variety of identity and access management (IAM) models Find out how to set up monitoring and logging solutions Build a complete skill set of Azure administration activities with Azure DevOps Discover efficient scaling patterns for small and large workloads Who this book is for This book is for cloud administrators, system administrators, and IT professionals who want to scale up their skillset and enter the world of cloud computing. IT professionals and engineers who are already familiar with the basics of the Azure services and are looking for a step-by-step guide to solving the most common Azure problems will also find this book useful. Basic understanding of cloud concepts such as IaaS, PaaS, virtualization, networking, and common Azure services is required.

“Based on my own experience, I can safely say that every .NET developer who reads this will have at least one ‘aha’ moment and will be a better developer for it.” —From the Foreword by Don Box The popular C# programming language combines the high productivity of rapid application development languages with the raw power of C and C++. Now, C# 3.0 adds functional programming techniques and LINQ, Language

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INtegrated Query. The C# Programming Language, Third Edition, is the authoritative and annotated technical reference for C# 3.0. Written by Anders Hejlsberg, the language's architect, and his colleagues, Mads Torgersen, Scott Wiltamuth, and Peter Golde, this volume has been completely updated and reorganized for C# 3.0. The book provides the complete specification of the language, along with descriptions, reference materials, code samples, and annotations from nine prominent C# gurus. The many annotations—a new feature in this edition—bring a depth and breadth of understanding rarely found in any programming book. As the main text of the book introduces the concepts of the C# language, cogent annotations explain why they are important, how they are used, how they relate to other languages, and even how they evolved. This book is the definitive, must-have reference for any developer who wants to understand C#.

This book highlights a range of new approaches and concepts in the field of software engineering. Based on systematic methods, graphical and formal models, the approaches are designed for solving practical problems encountered in actual software development. The book is divided into 13 chapters, which address core aspects such as security, performance and quality measurement. Chiefly intended to stimulate new research by presenting real problems faced by the industry, and to facilitate software development by applying precisely defined, validated and efficient models and methods, the book offers a valuable guide – for researchers and industry practitioners at small, medium and large companies alike.

Create scalable applications by taking advantage of NoSQL document databases on the cloud with .NET Core Key Features Work with the latest available tools related to Cosmos DB Learn to work with the latest version of the .NET Core SDK, C# and the SQL API Work with a database service that doesn't require you to use an ORM and provides flexibility Book Description Cosmos DB is a NoSQL database service included in Azure that is continuously adding new features and has quickly become one of the most innovative services found in Azure, targeting mission-critical applications at a global scale. This book starts off by showing you the main features of Cosmos DB, their supported NoSQL data models and the foundations of its scalable and distributed architecture. You will learn to work with the latest available tools that simplify your tasks with Cosmos DB and reduce development costs, such as the Data Explorer in the Azure portal, Microsoft Azure Storage Explorer, and the Cosmos DB Emulator. Next, move on to working with databases and document collections. We will use the tools to run schema agnostic queries against collections with the Cosmos DB SQL dialect and understand their results. Then, we will create a first version of an application that uses the latest .NET Core SDK to interact with Cosmos DB. Next, we will create a second version of the application that will take advantage of important features that the combination of C# and the .NET Core SDK provides, such as POCOs and LINQ queries. By the end of the book, you will be able to build an application that works with a Cosmos DB NoSQL document database with C#, the .NET Core SDK, LINQ, and JSON. What you will learn Understand the supported NoSQL data models and the resource hierarchy Learn the latest tools to work with Cosmos DB accounts and collections Reduce your development costs by working with the Cosmos DB Emulator Understand request units, automatic indexing, partitioning, and billing Build an application with C#, Cosmos DB, .NET Core SDK, and the SQL API Perform

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asynchronous operations with databases, and documents in C# Work with models, and customize serialization of LINQ queries Who this book is for This book is for C# developers. You do not require any knowledge of Azure Cosmos DB, but familiarity with the Azure platform is expected.

By his early thirties, Paul Allen was a world-famous billionaire-and that was just the beginning. In 2007 and 2008, Time named Paul Allen, the cofounder of Microsoft, one of the hundred most influential people in the world. Since he made his fortune, his impact has been felt in science, technology, business, medicine, sports, music, and philanthropy. His passion, curiosity, and intellectual rigor-combined with the resources to launch and support new initiatives-have literally changed the world. In 2009 Allen discovered that he had lymphoma, lending urgency to his desire to share his story for the first time. In this classic memoir, Allen explains how he solved problems, what he learned from his many endeavors-both the triumphs and the failures-and his compelling vision for the future. He reflects candidly on an extraordinary life. The book also features previously untold stories about everything from the true origins of Microsoft to Allen's role in the dawn of private space travel (with SpaceShipOne) and in discoveries at the frontiers of brain science. With honesty, humor, and insight, Allen tells the story of a life of ideas made real.

Explore the impressive storage and analytic tools available with the in-cloud and on-premises versions of Microsoft SQL Server 2019. Key Features Gain insights into what's new in SQL Server 2019 Understand use cases and customer scenarios that can be implemented with SQL Server 2019 Discover new cross-platform tools that simplify management and analysis Book Description Microsoft SQL Server comes equipped with industry-leading features and the best online transaction processing capabilities. If you are looking to work with data processing and management, getting up to speed with Microsoft Server 2019 is key. Introducing SQL Server 2019 takes you through the latest features in SQL Server 2019 and their importance. You will learn to unlock faster querying speeds and understand how to leverage the new and improved security features to build robust data management solutions. Further chapters will assist you with integrating, managing, and analyzing all data, including relational, NoSQL, and unstructured big data using SQL Server 2019. Dedicated sections in the book will also demonstrate how you can use SQL Server 2019 to leverage data processing platforms, such as Apache Hadoop and Spark, and containerization technologies like Docker and Kubernetes to control your data and efficiently monitor it. By the end of this book, you'll be well versed with all the features of Microsoft SQL Server 2019 and understand how to use them confidently to build robust data management solutions. What you will learn Build a custom container image with a Dockerfile Deploy and run the SQL Server 2019 container image Understand how to use SQL server on Linux Migrate existing paginated reports to Power BI Report Server Learn to query Hadoop Distributed File System (HDFS) data using Azure Data Studio Understand the benefits of In-Memory OLTP Who this book is for This book is for database administrators, architects, big data engineers, or anyone who has experience with SQL Server and wants to explore and implement the new features in SQL Server 2019. Basic working knowledge of SQL Server and relational database management system (RDBMS) is required.

Build a modern data warehouse on Microsoft's Azure Platform that is flexible,

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adaptable, and fast—fast to snap together, reconfigure, and fast at delivering results to drive good decision making in your business. Gone are the days when data warehousing projects were lumbering dinosaur-style projects that took forever, drained budgets, and produced business intelligence (BI) just in time to tell you what to do 10 years ago. This book will show you how to assemble a data warehouse solution like a jigsaw puzzle by connecting specific Azure technologies that address your own needs and bring value to your business. You will see how to implement a range of architectural patterns using batches, events, and streams for both data lake technology and SQL databases. You will discover how to manage metadata and automation to accelerate the development of your warehouse while establishing resilience at every level. And you will know how to feed downstream analytic solutions such as Power BI and Azure Analysis Services to empower data-driven decision making that drives your business forward toward a pattern of success. This book teaches you how to employ the Azure platform in a strategy to dramatically improve implementation speed and flexibility of data warehousing systems. You will know how to make correct decisions in design, architecture, and infrastructure such as choosing which type of SQL engine (from at least three options) best meets the needs of your organization. You also will learn about ETL/ELT structure and the vast number of accelerators and patterns that can be used to aid implementation and ensure resilience. Data warehouse developers and architects will find this book a tremendous resource for moving their skills into the future through cloud-based implementations. What You Will Learn Choose the appropriate Azure SQL engine for implementing a given data warehouse Develop smart, reusable ETL/ELT processes that are resilient and easily maintained Automate mundane development tasks through tools such as PowerShell Ensure consistency of data by creating and enforcing data contracts Explore streaming and event-driven architectures for data ingestion Create advanced staging layers using Azure Data Lake Gen 2 to feed your data warehouse Who This Book Is For Data warehouse or ETL/ELT developers who wish to implement a data warehouse project in the Azure cloud, and developers currently working in on-premise environments who want to move to the cloud, and for developers with Azure experience looking to tighten up their implementation and consolidate their knowledge

Hit the ground running with this book to quickly learn the fundamentals of HTML form processing, user authentication, and database CRUD (Create, Read, Update, and Delete) operations using the ASP.NET Core family of technologies. You will utilize cutting-edge and popular technology options from both the server side and client side to help you achieve your web application goals as quickly as possible. Developers who want to learn ASP.NET Core and complementary technologies are often overwhelmed by the large number of options involved in building modern web applications. This book introduces you to the most popular options so that you can confidently begin working on projects in no time. You will learn by example, building a sample application that demonstrates how the same application can be built using different options. This experiential approach will give you the basic skills and knowledge to understand how the options work together so that you can make an informed decision about the available choices, their trade-offs, and code level comparison. After reading this book, you will be able to choose your selected learning path. What You Will Learn Develop data entry forms in ASP.NET Core, complete with validations and processing Perform

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CRUD operations using server-side options: ASP.NET Core MVC, Razor Pages, Web APIs, and Blazor Perform CRUD operations using client-side options: jQuery and Angular Secure web applications using ASP.NET Core Identity, cookie authentication, and JWT authentication Use RDBMS and NoSQL data stores: SQL Server, Azure SQL Database, Azure Cosmos DB, and MongoDB for CRUD operations Deploy ASP.NET Core web applications to IIS and Azure App Service Who This Book Is For Developers who possess a basic understanding of ASP.NET and how web applications work. Some experience with Visual Studio 2017 or higher, C#, and JavaScript is helpful.

Gain an in-depth understanding of Azure Cosmos DB -- a multi-model database from Microsoft Key Features Develop your skills to build and scale applications using the power of Azure CosmosDB. Learn how to store and access data with a variety of APIs including MongoDB, Gremlin, SQL, Azure Tables and much more. Fast paced guide to have a better understanding of the features with the practical approach mentioned. Book Description Microsoft has introduced a new globally distributed database, called Azure Cosmos DB. It is a superset of Microsoft's existing NoSQL Document DB service. Azure Cosmos DB enables you to scale throughput and storage elastically and independently across any number of Azure's geographic regions. This book is a must-have for anyone who wants to get introduced to the world of Cosmos DB. This book will focus on building globally-distributed applications without the hassle of complex, multiple datacenter configurations. This book will shed light on how Cosmos DB offers multimodal NoSQL database capabilities in the cloud at a scale that is one product with different database engines, such as key-value, document, graph, and wide column store. We will cover detailed practical examples on how to create a CRUD application using Cosmos DB with a frontend framework of your choice. This book will empower developers to choose their favorite database engines to perform integration, along with other systems that utilize the most popular languages, such as Node.js. This book will take you through the tips and trick, of Cosmos DB deployment, management, and the security offered by Azure Cosmos DB in order to detect, prevent, and respond to database breaches. By the end of this book, you will not only be aware of the best capabilities of relational and non-relational databases, but you will also be able to build scalable, globally distributed, and highly responsive applications. What you will learn Build highly responsive and mission-critical applications Understand how distributed databases are important for global scale and low latency Understand how to write globally distributed applications the right way Implement comprehensive SLAs for throughput, latency, consistency, and availability Implement multiple data models and popular APIs for accessing and querying data Implement best practices covering data security in order to detect, prevent and respond to database breaches Who this book is for This book is intended to anyone who wants to get well versed with Microsoft's new NoSQL database called Azure Cosmos DB. Get the database into work with the practical examples mentioned.

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Access detailed content and examples on Azure SQL, a set of cloud services that allows for SQL Server to be deployed in the cloud. This book teaches the fundamentals of deployment, configuration, security, performance, and availability of Azure SQL from the perspective of these same tasks and capabilities in SQL Server. This distinct approach makes this book an ideal learning platform for readers familiar with SQL Server on-premises who want to migrate their skills toward providing cloud solutions to an enterprise market that is increasingly cloud-focused. If you know SQL Server, you will love this book. You will be able to take your existing knowledge of SQL Server and translate that knowledge into the world of cloud services from the Microsoft Azure platform, and in particular into Azure SQL. This book provides information never seen before about the history and architecture of Azure SQL. Author Bob Ward is a leading expert with access to and support from the Microsoft engineering team that built Azure SQL and related database cloud services. He presents powerful, behind-the-scenes insights into the workings of one of the most popular database cloud services in the industry. What You Will Learn Know the history of Azure SQL Deploy, configure, and connect to Azure SQL Choose the correct way to deploy SQL Server in Azure Migrate existing SQL Server instances to Azure SQL Monitor and tune Azure SQL's performance to meet your needs Ensure your data and application are highly available Secure your data from attack and theft Who This Book Is For This book is designed to teach SQL Server in the Azure cloud to the SQL Server professional. Anyone who operates, manages, or develops applications for SQL Server will benefit from this book. Readers will be able to translate their current knowledge of SQL Server—especially of SQL Server 2019—directly to Azure. This book is ideal for database professionals looking to remain relevant as their customer base moves into the cloud.

A Wrinkle in Time is the winner of the 1963 Newbery Medal. It was a dark and stormy night—Meg Murry, her small brother Charles Wallace, and her mother had come down to the kitchen for a midnight snack when they were upset by the arrival of a most disturbing stranger. "Wild nights are my glory," the unearthly stranger told them. "I just got caught in a downdraft and blown off course. Let me sit down for a moment, and then I'll be on my way. Speaking of ways, by the way, there is such a thing as a tesseract." A tesseract (in case the reader doesn't know) is a wrinkle in time. To tell more would rob the reader of the enjoyment of Miss L'Engle's unusual book. A Wrinkle in Time, winner of the Newbery Medal in 1963, is the story of the adventures in space and time of Meg, Charles Wallace, and Calvin O'Keefe (athlete, student, and one of the most popular boys in high school). They are in search of Meg's father, a scientist who disappeared while engaged in secret work for the government on the tesseract problem.

Prepare for Microsoft Exam 70-339—and help demonstrate your real-world mastery of planning, configuring, and managing Microsoft SharePoint 2016 core technologies in datacenters, in the cloud, and in hybrid environments. Designed for experienced IT pros ready to advance their status, this Exam Ref focuses on

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the critical-thinking and decision-making acumen needed for success at the MCSE level. Focus on the skills measured on the exam:

- Design SharePoint infrastructure
- Plan authentication and security
- Plan workload optimization
- Plan productivity solutions
- Manage search capabilities
- Plan and configure cloud services
- Monitor and optimize a SharePoint environment

This Microsoft Exam Ref:

- Organizes its coverage by the “Skills measured” posted on the exam webpage
- Features strategic, what-if scenarios to challenge you
- Provides exam preparation tips
- Points to in-depth material by topic for exam candidates needing additional review
- Assumes experience planning and maintaining SharePoint and related core technologies, including Windows Server 2012 R2 or later, Internet Information Services (IIS), Microsoft SQL Server 2014 or later, Active Directory, and networking infrastructure services

What could you do with data if scalability wasn't a problem? With this hands-on guide, you'll learn how Apache Cassandra handles hundreds of terabytes of data while remaining highly available across multiple data centers -- capabilities that have attracted Facebook, Twitter, and other data-intensive companies.

Cassandra: The Definitive Guide provides the technical details and practical examples you need to assess this database management system and put it to work in a production environment. Author Eben Hewitt demonstrates the advantages of Cassandra's nonrelational design, and pays special attention to data modeling. If you're a developer, DBA, application architect, or manager looking to solve a database scaling issue or future-proof your application, this guide shows you how to harness Cassandra's speed and flexibility. Understand the tenets of Cassandra's column-oriented structure Learn how to write, update, and read Cassandra data Discover how to add or remove nodes from the cluster as your application requires Examine a working application that translates from a relational model to Cassandra's data model Use examples for writing clients in Java, Python, and C# Use the JMX interface to monitor a cluster's usage, memory patterns, and more Tune memory settings, data storage, and caching for better performance

This book is for developers who want an alternative way to store and process data within their applications. No previous graph database experience is required; however, some basic database knowledge will help you understand the concepts more easily.

Get up to speed on the game-changing developments in SQL Server 2019. No longer just a database engine, SQL Server 2019 is cutting edge with support for machine learning (ML), big data analytics, Linux, containers, Kubernetes, Java, and data virtualization to Azure. This is not a book on traditional database administration for SQL Server. It focuses on all that is new for one of the most successful modernized data platforms in the industry. It is a book for data professionals who already know the fundamentals of SQL Server and want to up their game by building their skills in some of the hottest new areas in technology. SQL Server 2019 Revealed begins with a look at the project's team goal to

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integrate the world of big data with SQL Server into a major product release. The book then dives into the details of key new capabilities in SQL Server 2019 using a “learn by example” approach for Intelligent Performance, security, mission-critical availability, and features for the modern developer. Also covered are enhancements to SQL Server 2019 for Linux and gain a comprehensive look at SQL Server using containers and Kubernetes clusters. The book concludes by showing you how to virtualize your data access with Polybase to Oracle, MongoDB, Hadoop, and Azure, allowing you to reduce the need for expensive extract, transform, and load (ETL) applications. You will then learn how to take your knowledge of containers, Kubernetes, and Polybase to build a comprehensive solution called Big Data Clusters, which is a marquee feature of 2019. You will also learn how to gain access to Spark, SQL Server, and HDFS to build intelligence over your own data lake and deploy end-to-end machine learning applications. What You Will Learn Implement Big Data Clusters with SQL Server, Spark, and HDFS Create a Data Hub with connections to Oracle, Azure, Hadoop, and other sources Combine SQL and Spark to build a machine learning platform for AI applications Boost your performance with no application changes using Intelligent Performance Increase security of your SQL Server through Secure Enclaves and Data Classification Maximize database uptime through online indexing and Accelerated Database Recovery Build new modern applications with Graph, ML Services, and T-SQL Extensibility with Java Improve your ability to deploy SQL Server on Linux Gain in-depth knowledge to run SQL Server with containers and Kubernetes Know all the new database engine features for performance, usability, and diagnostics Use the latest tools and methods to migrate your database to SQL Server 2019 Apply your knowledge of SQL Server 2019 to Azure Who This Book Is For IT professionals and developers who understand the fundamentals of SQL Server and wish to focus on learning about the new, modern capabilities of SQL Server 2019. The book is for those who want to learn about SQL Server 2019 and the new Big Data Clusters and AI feature set, support for machine learning and Java, how to run SQL Server with containers and Kubernetes, and increased capabilities around Intelligent Performance, advanced security, and high availability.

More than 80 recipes to help you leverage the various extensibility features available for Microsoft Dynamics and solve problems easily About This Book Customize, configure, and extend the vanilla features of Dynamics 365 to deliver bespoke CRM solutions fit for any organization Implement business logic using point-and-click configuration, plugins, and client-side scripts with MS Dynamics 365 Built a DevOps pipeline as well as Integrate Dynamics 365 with Azure and other platforms Who This Book Is For This book is for developers, administrators, consultants, and power users who want to learn about best practices when extending Dynamics 365 for enterprises. You are expected to have a basic understand of the Dynamics CRM/365 platform. What You Will Learn Customize, configure, and extend Microsoft Dynamics 365 Create business process

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automation Develop client-side extensions to add features to the Dynamics 365 user interface Set up a security model to securely manage data with Dynamics 365 Develop and deploy clean code plugins to implement a wide range of custom behaviors Use third-party applications, tools, and patterns to integrate Dynamics 365 with other platforms Integrate with Azure, Java, SSIS, PowerBI, and Octopus Deploy Build an end-to-end DevOps pipeline for Dynamics 365 In Detail Microsoft Dynamics 365 is a powerful tool. It has many unique features that empower organisations to bridge common business challenges and technology pitfalls that would usually hinder the adoption of a CRM solution. This book sets out to enable you to harness the power of Dynamics 365 and cater to your unique circumstances. We start this book with a no-code configuration chapter and explain the schema, fields, and forms modeling techniques. We then move on to server-side and client-side custom code extensions. Next, you will see how best to integrate Dynamics 365 in a DevOps pipeline to package and deploy your extensions to the various SDLC environments. This book also covers modern libraries and integration patterns that can be used with Dynamics 365 (Angular, 3 tiers, and many others). Finally, we end by highlighting some of the powerful extensions available. Throughout we explain a range of design patterns and techniques that can be used to enhance your code quality; the aim is that you will learn to write enterprise-scale quality code. Style and approach This book takes a recipe-based approach, delivering practical examples and use cases so that you can identify the best possible approach to extend your Dynamics 365 deployment and tackle your specific business problems.

Gain the technical and business insight needed to plan, deploy, and manage the services provided by the Microsoft Azure cloud. This second edition focuses on improving operational decision tipping points for the professionals leading DevOps and security teams. This will allow you to make an informed decision concerning the workloads appropriate for your growing business in the Azure public cloud. Microsoft Azure starts with an introduction to Azure along with an overview of its architecture services such as IaaS and PaaS. You'll also take a look into Azure's data, artificial intelligence, and machine learning services. Moving on, you will cover the planning for and adoption of Azure where you will go through budgeting, cloud economics, and designing a hybrid data center. Along the way, you will work with web apps, network PaaS, virtual machines, and much more. The final section of the book starts with Azure data services and big data with an in-depth discussion of Azure SQL Database, CosmosDB, Azure Data Lakes, and MySQL. You will further see how to migrate on-premises databases to Azure and use data engineering. Next, you will discover the various Azure services for application developers, including Azure DevOps and ASP.NET web apps. Finally, you will go through the machine learning and AI tools in Azure, including Azure Cognitive Services. What You Will Learn Apply design guidance and best practices using Microsoft Azure to achieve business growth Create and manage virtual machines Work with AI frameworks to process and analyze data

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to support business decisions and increase revenue Deploy, publish, and monitor a web app Who This Book Is For Azure architects and business professionals looking for Azure deployment and implementation advice.

What determines whether complex life will arise on a planet, or even any life at all? Questions such as these are investigated in this groundbreaking book. In doing so, the authors synthesize information from astronomy, biology, and paleontology, and apply it to what we know about the rise of life on Earth and to what could possibly happen elsewhere in the universe. Everyone who has been thrilled by the recent discoveries of extrasolar planets and the indications of life on Mars and the Jovian moon Europa will be fascinated by Rare Earth, and its implications for those who look to the heavens for companionship.

Your one stop guide to making the most out of Azure Cloud About This Book Get familiar with the different design patterns available in Microsoft Azure Develop Azure cloud architecture and a pipeline management system Get to know the security best practices for your Azure deployment Who This Book Is For If you are Cloud Architects, DevOps Engineers, or developers who want to learn key architectural aspects of the Azure Cloud platform, then this book is for you. Prior basic knowledge of the Azure Cloud platform is good to have. What You Will Learn Familiarize yourself with the components of the Azure Cloud platform Understand the cloud design patterns Use enterprise security guidelines for your Azure deployment Design and implement Serverless solutions See Cloud architecture and the deployment pipeline Understand cost management for Azure solutions In Detail Over the years, Azure cloud services has grown quickly, and the number of organizations adopting Azure for their cloud services is also gradually increasing. Leading industry giants are finding that Azure fulfills their extensive cloud requirements. This book will guide you through all the important and tough decision-making aspects involved in architecting a Azure public cloud for your organization. The book starts with an extensive introduction to all the categories of designs available with Azure. These design patterns focus on different aspects of cloud such as high availability, data management, and so on. Gradually, we move on to various aspects such as building your cloud structure and architecture. It will also include a brief description about different types of services provided by Azure, such as Azure functions and Azure Analytics, which can prove beneficial for an organization. This book will cover each and every aspect and function required to develop a Azure cloud based on your organizational requirements. By the end of this book, you will be in a position to develop a full-fledged Azure cloud. Style and approach This hands-on guide to the Azure Cloud platform covers different architectural concepts and implementations necessary for any enterprise scale deployment.

Completely updated for C# 6.0, the new edition of this bestseller offers more than 150 code recipes to common and not-so-common problems that C# programmers face every day. More than a third of the recipes have been rewritten to take advantage of new C# 6.0 features. If you prefer solutions to

general C# language instruction and quick answers to theory, this is your book. C# 6.0 Cookbook offers new recipes for asynchronous methods, dynamic objects, enhanced error handling, the Roslyn compiler, and more. Here are some of topics covered: Classes and generics Collections, enumerators, and iterators Data types LINQ and Lambda expressions Exception handling Reflection and dynamic programming Regular expressions Filesystem interactions Networking and the Web XML usage Threading, Synchronization, and Concurrency Each recipe in the book includes tested code that you can download from oreilly.com and reuse in your own applications, and each one includes a detailed discussion of how and why the underlying technology works. You don't have to be an experienced C# or .NET developer to use C# 6.0 Cookbook. You just have to be someone who wants to solve a problem now, without having to learn all the related theory first.

Congratulations! You completed the MongoDB application within the given tight timeframe and there is a party to celebrate your application's release into production. Although people are congratulating you at the celebration, you are feeling some uneasiness inside. To complete the project on time required making a lot of assumptions about the data, such as what terms meant and how calculations are derived. In addition, the poor documentation about the application will be of limited use to the support team, and not investigating all of the inherent rules in the data may eventually lead to poorly-performing structures in the not-so-distant future. Now, what if you had a time machine and could go back and read this book. You would learn that even NoSQL databases like MongoDB require some level of data modeling. Data modeling is the process of learning about the data, and regardless of technology, this process must be performed for a successful application. You would learn the value of conceptual, logical, and physical data modeling and how each stage increases our knowledge of the data and reduces assumptions and poor design decisions. Read this book to learn how to do data modeling for MongoDB applications, and accomplish these five objectives: Understand how data modeling contributes to the process of learning about the data, and is, therefore, a required technique, even when the resulting database is not relational. That is, NoSQL does not mean NoDataModeling! Know how NoSQL databases differ from traditional relational databases, and where MongoDB fits. Explore each MongoDB object and comprehend how each compares to their data modeling and traditional relational database counterparts, and learn the basics of adding, querying, updating, and deleting data in MongoDB. Practice a streamlined, template-driven approach to performing conceptual, logical, and physical data modeling. Recognize that data modeling does not always have to lead to traditional data models! Distinguish top-down from bottom-up development approaches and complete a top-down case study which ties all of the modeling techniques together. This book is written for anyone who is working with, or will be working with MongoDB, including business analysts, data modelers, database

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administrators, developers, project managers, and data scientists. There are three sections: In Section I, Getting Started, we will reveal the power of data modeling and the tight connections to data models that exist when designing any type of database (Chapter 1), compare NoSQL with traditional relational databases and where MongoDB fits (Chapter 2), explore each MongoDB object and comprehend how each compares to their data modeling and traditional relational database counterparts (Chapter 3), and explain the basics of adding, querying, updating, and deleting data in MongoDB (Chapter 4). In Section II, Levels of Granularity, we cover Conceptual Data Modeling (Chapter 5), Logical Data Modeling (Chapter 6), and Physical Data Modeling (Chapter 7). Notice the “ing” at the end of each of these chapters. We focus on the process of building each of these models, which is where we gain essential business knowledge. In Section III, Case Study, we will explain both top down and bottom up development approaches and go through a top down case study where we start with business requirements and end with the MongoDB database. This case study will tie together all of the techniques in the previous seven chapters. Nike Senior Data Architect Ryan Smith wrote the foreword. Key points are included at the end of each chapter as a way to reinforce concepts. In addition, this book is loaded with hands-on exercises, along with their answers provided in Appendix A. Appendix B contains all of the book’s references and Appendix C contains a glossary of the terms used throughout the text.

Learn how to combine SQL Server's analytics with Azure's flexibility and hybrid connectivity to achieve industry-leading performance and manageability for your cloud database. Key Features Understand platform availability for SQL Server in Azure Explore the benefits and deployment choices offered by SQL IaaS Get to grips with deploying SQL Server on the Linux development ecosystem Book Description Deploying SQL Server on Azure virtual machines allows you to work on full versions of SQL Server in the cloud without having to maintain on-premises hardware. The book begins by introducing you to the SQL portfolio in Azure and takes you through SQL Server IaaS scenarios, before explaining the factors that you need to consider while choosing an OS for SQL Server in Azure VMs. As you progress through the book, you'll explore different VM options and deployment choices for IaaS and understand platform availability, migration tools, and best practices in Azure. In later chapters, you'll learn how to configure storage to achieve optimized performance. Finally, you'll get to grips with the concept of Azure Hybrid Benefit and find out how you can use it to maximize the value of your existing on-premises SQL Server. By the end of this book, you'll be proficient in administering SQL Server on Microsoft Azure and leveraging the tools required for its deployment. What you will learn Choose an operating system for SQL Server in Azure VMs Use the Azure Management Portal to facilitate the deployment process Verify connectivity and network latency in cloud Configure storage for optimal performance and connectivity Explore various disaster recovery options for SQL Server in Azure Optimize SQL Server on Linux

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Discover how to back up databases to a URL Who this book is for SQL Server on Azure VMs is for you if you are a developer, data enthusiast, or anyone who wants to migrate SQL Server databases to Azure virtual machines. Basic familiarity with SQL Server and managed identities for Azure resources will be a plus.

Learn the main features of Azure Cosmos DB and how to use Microsoft's multi-model database service as a data store for mission-critical applications. The clear examples help in writing your own applications to take advantage of Cosmos DB's multi-model, globally distributed, elastic database. Simple step-by-step instructions show how to resolve common and uncommon scenarios involving Azure Cosmos DB, and scenarios such as delivering extremely low response times (in the order of milliseconds), and scaling rapidly and globally. Microsoft Azure Cosmos DB Revealed demonstrates a multitude of possible implementations to get you started. This book guides you toward best practices to get the most out of Microsoft's Cosmos DB service. Later chapters in the book cover advanced implementation features, helping you master important elements such as securing the database, querying, and using various APIs. What You'll Learn Set up a development environment to work with Azure Cosmos DB Configure Azure Cosmos DB in a production environment with multi-region distribution Query using all APIs, including SQL, JavaScript, MongoDB, and Graph Work with the Azure Cosmos DB.NET SDK in an application you built Access Cosmos DB from web applications created in .NET Who This Book Is For Developers who build applications to be hosted in Microsoft Azure, whether they use PaaS or IaaS. No previous knowledge of Azure Cosmos DB is assumed, but readers must be familiar with developing applications in Microsoft Visual Studio. This book is ideal for IT professionals who have some experience with SQL Server or Database but are looking for a rich hands-on resource with guidance to explore each of the Azure SQL administrator concepts and the solutions the cloud provider offers. The book is primarily designed for Cloud DBAs (with ample knowledge of SQL server) who are new to Azure and want to have a solid start and get an in-depth glimpse on advanced topics that will help them to solve day-to-day issues plus effectively support the Azure databases. Administering Relational Databases on Microsoft Azure takes readers through a complete tour of understanding fundamental Azure concepts, Azure SQL administration, Azure Management tools, and techniques. This book will give an edge over to clear DP 300 exam. Increasingly, we continue to flood with information about the importance of the cloud. Cloud computing is everywhere, but not everyone knows exactly what it is and where to get started. We try to focus more on Azure SQL and give you the foundational understanding of what the cloud really is and tell you how some of these cloud technologies can work for you, and direct you to improve your knowledge and get certified with hassle-free learning. If you find it is for you, you will pick up useful tricks and tips for making a move to the cloud as seamless as possible. It is never too late to turn the corner from "On-premise

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DBA" to "Cloud DBA specialist". In most technical discussions, we see a vast gap in cloud adoption and the reality of absorption. There is always a need to learn the Next-Gen technology. In this book, you explore the importance of understanding and managing cloud databases and the skills you must build around the Cloud to face the cloud DBA certification. In addition, along the way, you will pick up great interesting insights, real-time scenarios and fundamentals, concepts of Cloud, cloud management tools, test cases, and several practice solutions.

Is your worldview enlightened enough to accommodate both science and God at the same time? Dr. Michael Guillen, a best-selling author, Emmy award-winning journalist and former physics instructor at Harvard, used to be an Atheist—until science changed his mind. Once of the opinion that people of faith are weak, small-minded folks who just don't understand science, Dr. Guillen ultimately concluded that not only does science itself depend on faith, but faith is actually the mightiest power in the universe. In *Believing Is Seeing*, Dr. Guillen recounts the fascinating story of his journey from Atheism to Christianity, citing the latest discoveries in neuroscience, physics, astronomy, and mathematics to pull back the curtain on the mystery of faith as no one ever has. Is it true that "seeing is believing?" Or is it possible that reality can be perceived most clearly with the eyes of faith—and that truth is bigger than proof? Let Dr. Guillen be your guide as he brilliantly argues for a large and enlightened worldview consistent with both God and modern science.

"Raymond Chen is the original raconteur of Windows." --Scott Hanselman, ComputerZen.com "Raymond has been at Microsoft for many years and has seen many nuances of Windows that others could only ever hope to get a glimpse of. With this book, Raymond shares his knowledge, experience, and anecdotal stories, allowing all of us to get a better understanding of the operating system that affects millions of people every day. This book has something for everyone, is a casual read, and I highly recommend it!" --Jeffrey Richter, Author/Consultant, Cofounder of Wintellect "Very interesting read. Raymond tells the inside story of why Windows is the way it is." --Eric Gunnerson, Program Manager, Microsoft Corporation "Absolutely essential reading for understanding the history of Windows, its intricacies and quirks, and why they came about." --Matt Pietrek, MSDN Magazine's Under the Hood Columnist "Raymond Chen has become something of a legend in the software industry, and in this book you'll discover why. From his high-level reminiscences on the design of the Windows Start button to his low-level discussions of GlobalAlloc that only your inner-geek could love, *The Old New Thing* is a captivating collection of anecdotes that will help you to truly appreciate the difficulty inherent in designing and writing quality software." --Stephen Toub, Technical Editor, MSDN Magazine "Why does Windows work the way it does? Why is Shut Down on the Start menu? (And why is there a Start button, anyway?) How can I tap into the dialog loop? Why does the GetWindowText function behave so strangely? Why are registry files called

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"hives"? Many of Windows' quirks have perfectly logical explanations, rooted in history. Understand them, and you'll be more productive and a lot less frustrated. Raymond Chen--who's spent more than a decade on Microsoft's Windows development team--reveals the "hidden Windows" you need to know. Chen's engaging style, deep insight, and thoughtful humor have made him one of the world's premier technology bloggers. Here he brings together behind-the-scenes explanations, invaluable technical advice, and illuminating anecdotes that bring Windows to life--and help you make the most of it. A few of the things you'll find inside: What vending machines can teach you about effective user interfaces A deeper understanding of window and dialog management Why performance optimization can be so counterintuitive A peek at the underbelly of COM objects and the Visual C++ compiler Key details about backwards compatibility--what Windows does and why Windows program security holes most developers don't know about How to make your program a better Windows citizen

With more than 250 ready-to-use recipes, this solutions-oriented introduction to the Windows PowerShell scripting environment and language provides administrators with the tools to be productive immediately.

Data is bigger, arrives faster, and comes in a variety of formats—and it all needs to be processed at scale for analytics or machine learning. But how can you process such varied workloads efficiently? Enter Apache Spark. Updated to include Spark 3.0, this second edition shows data engineers and data scientists why structure and unification in Spark matters. Specifically, this book explains how to perform simple and complex data analytics and employ machine learning algorithms. Through step-by-step walk-throughs, code snippets, and notebooks, you'll be able to: Learn Python, SQL, Scala, or Java high-level Structured APIs Understand Spark operations and SQL Engine Inspect, tune, and debug Spark operations with Spark configurations and Spark UI Connect to data sources: JSON, Parquet, CSV, Avro, ORC, Hive, S3, or Kafka Perform analytics on batch and streaming data using Structured Streaming Build reliable data pipelines with open source Delta Lake and Spark Develop machine learning pipelines with MLlib and productionize models using MLflow

Learn Azure Cosmos DB and its MongoDB API with hands-on samples and advanced features such as the multi-homing API, geo-replication, custom indexing, TTL, request units (RU), consistency levels, partitioning, and much more. Each chapter explains Azure Cosmos DB's features and functionalities by comparing it to MongoDB with coding samples. Cosmos DB for MongoDB Developers starts with an overview of NoSQL and Azure Cosmos DB and moves on to demonstrate the difference between geo-replication of Azure Cosmos DB compared to MongoDB. Along the way you'll cover subjects including indexing, partitioning, consistency, and sizing, all of which will help you understand the concepts of read units and how this calculation is derived from an existing MongoDB's usage. The next part of the book shows you the process and strategies for migrating to Azure Cosmos DB. You will learn the day-to-day

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scenarios of using Azure Cosmos DB, its sizing strategies, and optimizing techniques for the MongoDB API. This information will help you when planning to migrate from MongoDB or if you would like to compare MongoDB to the Azure Cosmos DB MongoDB API before considering the switch. What You Will Learn Migrate to MongoDB and understand its strategies Develop a sample application using MongoDB's client driver Make use of sizing best practices and performance optimization scenarios Optimize MongoDB's partition mechanism and indexing Who This Book Is For MongoDB developers who wish to learn Azure Cosmos DB. It specifically caters to a technical audience, working on MongoDB.

Leverage the power of Microsoft Azure Data Factory v2 to build hybrid data solutions Key Features Combine the power of Azure Data Factory v2 and SQL Server Integration Services Design and enhance performance and scalability of a modern ETL hybrid solution Interact with the loaded data in data warehouse and data lake using Power BI Book Description ETL is one of the essential techniques in data processing. Given data is everywhere, ETL will always be the vital process to handle data from different sources. Hands-On Data Warehousing with Azure Data Factory starts with the basic concepts of data warehousing and ETL process. You will learn how Azure Data Factory and SSIS can be used to understand the key components of an ETL solution. You will go through different services offered by Azure that can be used by ADF and SSIS, such as Azure Data Lake Analytics, Machine Learning and Databrick's Spark with the help of practical examples. You will explore how to design and implement ETL hybrid solutions using different integration services with a step-by-step approach. Once you get to grips with all this, you will use Power BI to interact with data coming from different sources in order to reveal valuable insights. By the end of this book, you will not only learn how to build your own ETL solutions but also address the key challenges that are faced while building them. What you will learn Understand the key components of an ETL solution using Azure Data Factory and Integration Services Design the architecture of a modern ETL hybrid solution Implement ETL solutions for both on-premises and Azure data Improve the performance and scalability of your ETL solution Gain thorough knowledge of new capabilities and features added to Azure Data Factory and Integration Services Who this book is for This book is for you if you are a software professional who develops and implements ETL solutions using Microsoft SQL Server or Azure cloud. It will be an added advantage if you are a software engineer, DW/ETL architect, or ETL developer, and know how to create a new ETL implementation or enhance an existing one with ADF or SSIS.

Data Center Virtualization Fundamentals For many IT organizations, today's greatest challenge is to drive more value, efficiency, and utilization from data centers. Virtualization is the best way to meet this challenge. Data Center Virtualization Fundamentals brings together the comprehensive knowledge Cisco professionals need to apply virtualization throughout their data center

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environments. Leading data center expert Gustavo A. A. Santana thoroughly explores all components of an end-to-end data center virtualization solution, including networking, storage, servers, operating systems, application optimization, and security. Rather than focusing on a single product or technology, he explores product capabilities as interoperable design tools that can be combined and integrated with other solutions, including VMware vSphere. With the author's guidance, you'll learn how to define and implement highly-efficient architectures for new, expanded, or retrofit data center projects. By doing so, you can deliver agile application provisioning without purchasing unnecessary infrastructure, and establish a strong foundation for new cloud computing and IT-as-a-service initiatives. Throughout, Santana illuminates key theoretical concepts through realistic use cases, real-world designs, illustrative configuration examples, and verification outputs. Appendixes provide valuable reference information, including relevant Cisco data center products and CLI principles for IOS and NX-OS. With this approach, Data Center Virtualization Fundamentals will be an indispensable resource for anyone preparing for the CCNA Data Center, CCNP Data Center, or CCIE Data Center certification exams. Gustavo A. A. Santana, CCIE No. 8806, is a Cisco Technical Solutions Architect working in enterprise and service provider data center projects that require deep integration across technology areas such as networking, application optimization, storage, and servers. He has more than 15 years of data center experience, and has led and coordinated a team of specialized Cisco engineers in Brazil. He holds two CCIE certifications (Routing & Switching and Storage Networking), and is a VMware Certified Professional (VCP) and SNIA Certified Storage Networking Expert (SCSN-E). A frequent speaker at Cisco and data center industry events, he blogs on data center virtualization at gustavoasantana.net. Learn how virtualization can transform and improve traditional data center network topologies Understand the key characteristics and value of each data center virtualization technology Walk through key decisions, and transform choices into architecture Smoothly migrate existing data centers toward greater virtualization Burst silos that have traditionally made data centers inefficient Master foundational technologies such as VLANs, VRF, and virtual contexts Use virtual PortChannel and FabricPath to overcome the limits of STP Optimize cabling and network management with fabric extender (FEX) virtualized chassis Extend Layer 2 domains to distant data center sites using MPLS and Overlay Transport Virtualization (OTV) Use VSANs to overcome Fibre Channel fabric challenges Improve SAN data protection, environment isolation, and scalability Consolidate I/O through Data Center Bridging and FCoE Use virtualization to radically simplify server environments Create server profiles that streamline "bare metal" server provisioning "Transcend the rack" through virtualized networking based on Nexus 1000V and VM-FEX Leverage opportunities to deploy virtual network services more efficiently Evolve data center virtualization toward full-fledged private clouds

-Reviews - "The variety of material that Gustavo covers in this work would appeal

